

REMARKS

Reconsideration of this application is respectfully requested. Upon of the foregoing Amendment, claims 1, 2, 4-10, and 13-66 are pending. Claims 3, 11, and 12 are cancelled herein and claims 1, 4, 47, 65, and 66 are amended. All of the pending claims stand rejected.

The Amendment accompanying this response is believed to introduce no new matter and its entry is respectfully requested. Support for the Amendments to claims 1, 47, 65 and 66 may be found throughout this specification including, but no limited to paragraphs [0055], and [0060] through [0065].

REJECTIONS UNDER 35 U.S.C. § 103(a)

All pending claims stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Hartmann (U.S. Pat. No. 3,454,603) in view of Feldmann, et al. (U.S. Pat. No. 4,564,692) and Brinegar, et al. (WO 00/14081). Applicants respectfully submit that no proper *prima facie* case of obviousness has been established because there is no motivation to combine the cited documents. Moreover, even if there were motivation to combine the documents, they would not teach all of the limitations of the claims of the instant application.

I. There is No Motivation to Combine Hartmann and Feldmann.

The Office Action states that Hartmann discloses process of preparing dianhydrohexitols such as D-isosorbide and D-isomannide by the acid catalyzed dehydration of such starting materials as D-sorbitol and D-mannitol at low pressures. The Office Action admits that Hartmann does not include melt crystallization filtering or the use of a film evaporator. Furthermore, Hartmann reports different parameters for distillation temperature, amount of added acidic ion exchange resin and cooling period.

The Office Action characterizes Feldmann as teaching a purification process by "crystallization from a concentrated solution in the absence of organic crystallization solvents. The Office Action further states that Feldmann obtains aqueous anhydrosugar alcohol solutions from acid catalyzed dehydration of hexitols with strongly acidic cationic exchange resins. The Office Action also asserts that Feldmann teaches successive fractional crystallization to produce

pure crystalline product, and that Brinegar offers guidance on the nature of an acidic catalyst that may be used with an advantage of little or no residue in producing anhydrosugar alcohols.

The Office Action concludes, "It would have been obvious to the skilled artisan in the art to be motivated to incorporate the Feldmann et al. crystallization technique into Hartmann along with Brinegar's, et al. AG50W-X12 acidic resin catalyst in order to further purify the desired products suitable for producing polyesters." The Office Action continues, "This is because the skilled artisan in the art would expect such a combination to be feasible and to improve on the purity of the desired compound by applying the Feldmann et al. crystallization technique to the Hartmann process as shown in the Brinegar, et al. prior art."

Applicants respectfully disagree. The claims of the instant invention are not obvious in light of Hartmann read in view of Feldmann and/or Brinegar. It is well established that there must be some suggestion or motivation in the references cited by the Examiner to combine them to obtain Applicant's invention. *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ 2d 1453, 1457-58 (Fed. Cir. 1998); M.P.E.P. Section 2143.01. Merely because two references can be combined does not make the combination obvious unless the combination is also suggested by the prior art. *In re Mills*, 916 F.2d 680, 16 USPQ 2d 1430 (Fed. Cir. 1990); M.P.E.P. Section 2143.01.

There is neither a suggestion nor any motivation for one skilled in the art to combine the Hartmann and Feldmann references. To the contrary, Hartmann specifically states that processes such as that used in Feldmann will not work to purify 1,4-3,6-dianhydro-D,L-glucitol. "The 1,4-3,6-dianhydro-D,L-glucitol is of such a nature that it is not readily crystallized, **thus crystallization is not used as a method to purify 1,4-3,6-dianhydro-D,L-glucitol.**" (Hartmann, Col. 2, ln. 72 - Col.3, ln. 3) (emphasis added). Not only is there no motivation to combine Hartmann and Feldmann, but where one reference teaches away from another their combination is not permitted. No *prima facie* case obviousness has been created. The rejection should be withdrawn for all pending claims.

## II. Even if Combined, the References Would Not Teach the Claimed Invention.

It is axiomatic that for a claim to be obvious in light of two or more combined references, each and every limitation in that claim must be either taught or suggested in those references.

The combination of Hartmann, Feldmann, and Brinegar does not include all of the limitations of the independent claims. In particular, independent claims 1, 43, 65 and 66 state that the initial dehydration is accomplished without a solvent. The absence of a solvent is not suggested or stated in any of the cited publications. Hartmann teaches the use of soluble acid catalysts, and the use of those catalysts necessitates addition of the solvent water to the initial reaction mixture. (Hartmann, Col. 2, ln. 41-43) Feldmann, while not enabled for production of anhydrosugar alcohols, also notes that sugar alcohol dehydration occurs in the presence of a solvent in the prior art (Feldmann, Col. 1, ln. 26) Finally, Brinegar explicitly relies on the use of organic solvents (Brinegar, page 4, line 17).

Even if one skilled in the art were motivated to combine Hartmann, Feldmann and Brinegar and even if such a combination were successful, the combination would not include the "without a solvent" limitation of the instant claims. Therefore, the claims are not rendered obvious by that prior art.

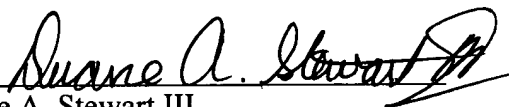
No motivation to combine the three references is found within the references themselves, and Hartmann and Feldmann teach away from their combination. Furthermore, even if there were some suggestion for combination, the cited publications fail to recognize or teach the benefits of conducting an initial dehydration without a solvent; and, therefore, they fail to teach all of the limitations of the claimed invention. For at least these reasons, the rejection under Section 103(a) should be withdrawn. Applicants respectfully request that the rejection be withdrawn and the claims allowed.

CONCLUSION

All of the stated grounds of rejection have been properly traversed, accommodated or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and as such, the Application is in condition for allowance. If the Examiner believes that personal communication would expedite prosecution of this Application, the Examiner is invited to telephone the undersigned at the number provided.

Respectfully submitted,

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